

# METHOD AND APPARATUS FOR WASTE OIL MANAGEMENT

## I. Background of the Invention

### A. *Field of Invention*

5 This application claims priority to U.S. Provisional application Serial No. 60/412,089, entitled Method and Apparatus for Waste Oil Management, filed September 19, 2002. This invention relates to the art of waste oil management and collection, and particularly to a system for collecting and storing spent cooking oil.

### B. *Description of the Related Art*

10 Currently, waste oil is stored in drums or other temporary receptacles, often outside the back door of the premises. This presents an unsightly and dangerous hazard, which is compounded by spills causing slippery areas that are almost impossible to clear, creating odors and mess.

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The present invention provides a new and improved waste oil management system, and overcomes certain difficulties inherent in the related inventions while providing better overall results.

## 20 II. Summary of the Invention

In accordance with one aspect of the present invention, a waste oil management system for use with multiple associated fryers includes a remote oil holding tank, the tank being located

in a different room than the fryers, stainless steel tubing, the tubing being coated interiorally with a non-stick coating, the tubing connecting the fryers to the tank, and at least one pumping mechanism, the pumping mechanism enabling used oil to be transported from the fryer to the  
5 tank.

In accordance with another aspect of the present invention, a waste oil management system for use with at least one associated food grade oil utilizing apparatus includes at least one remote oil holding tank, transport tubing, the tubing connecting the apparatus to the tank, and  
10 transferring means for transferring used oil through the tubing from the apparatus to the tank.

In accordance with another aspect of the present invention, the transport tubing has non-stick interior coating.

15 In accordance with another aspect of the present invention, the transferring means is a pumping mechanism.

In accordance with another aspect of the present invention, a waste oil storage caddy includes a first container, a second container for holding filtered oil, a motor, a pump, a handle, a  
20 power cord, first tubing, the first tubing connected to the motor and the first container, second tubing, the second tubing connected to the motor and the second container, and a filter.

In accordance with another aspect of the present invention, the caddy further comprises wheels.

In accordance with another aspect of the present invention, the first tubing is flexible  
5 tubing.

In accordance with another aspect of the present invention, the power cord is detachable.

Still other benefits and advantages of the invention will become apparent to those skilled  
10 in the art upon reading and understanding of the following detailed specification.

### *III. Brief Description of Drawings*

The invention is illustrated in the following drawings:

FIGURE 1 is a perspective view of the inside direct plumbed system;

15 FIGURE 2 is a perspective view of the outside direct plumbed system; and,

FIGURE 3 is a perspective view of the storage caddy and filtration system.

### *IV. Description of the Invention*

The present invention includes several different strategies for waste oil containment. For  
20 example, an inside system is designed for when plenty of interior floor space is available in the building, and outside system is designed where insufficient interior floor space is available, but has exterior non-public wall space available, and custom solutions can be designed for specific needs.

The following is description of some of the components used in the present invention:

Inside Tank - 30" diameter tank, heated, insulated, stainless steel sides, top and bottom,  
5   vented, level sensing switch, electronic control panel designed to control all phases of the  
operation.

Remote Tank - same as inside tank with the ability to be placed anywhere in a building  
due to the unique abilities of the control panel and pumping station. Additionally, an insulated  
10   building can be placed around the tank to put it outside.

Storage Caddy - Stainless steel cart used to shuttle the used oil from the fryer to the tank.  
The caddy has a filter basket to protect the pump and prevent buildup in the tank, four castors, of  
which two are locking, a motor with a separate on/off switch, and a break-away cord. The caddy  
15   can interfaces with control panel listed above. The caddy may be used as the only method of  
placing oil in the tank or, if a "direct connect system" is installed, no caddy is necessary.

Direct connect system - Allows fryers to be hooked directly to a pipe manifold and pump  
oil directly into the tank via overhead plumbing which can be rigid or flexible. The tank has  
20   additional solenoid valves added to stop the flow of oil and ensure that the tank does not  
overflow. All connections are made with quick-disconnects.

Note that the system is modular and upgradeable. By modular and upgradeable, it is meant that a caddy system can be installed and later upgraded to a direct connect with the appropriate kit and installation.

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With reference now to FIGURE 1, the inside direct plumbed system is shown. An associated oil utilizing apparatus 12, which in this particular embodiment is a deep fryer (it is to be understood that any device which uses food grade oil can be used with this invention), is located in a building. The fryer 12 is connected to a remote storage tank 10 by tubing 18. The direct plumbed system works best if the fryer 12 is equipped with a filtration system to filter the used oil before being pumped to the tank 10. As shown in FIGURE 1, the tank 10 can be located on the other side of a wall 14 from the fryer 12, and the tubing 18 can travel through the wall 14 and a ceiling 16. It is to be understood that this is merely one embodiment of the invention, and the particular design and hook-up of the tubing 18 is not intended to limit the invention in any manner. Any tubing 18, tank 10, and fryer 12 design can be used, as long as chosen using sound engineering judgment. The tank 10 has a control panel 36, which allows the user to control the flow of oil from the fryer 12 into the tank 10. The system has a pumping mechanism (not shown) to pump the oil. The tank 10, as mentioned above has a sensing device (not shown), which enables the tank 10 to ensure that it is not overfilled. The control panel 10 and the tubing 18, allow the tank 10 to be set up anywhere in the building, as the pumping of the oil can be controlled remotely.

With reference now to FIGURE 2, the outside direct plumbed system is shown. The outside direct plumbed system is similar to the inside direct plumbed system, except that the storage tank 10 is located outside the building. In FIGURE 2, a multiple fryer 12, 12', 12'' embodiment of the invention is shown as well (this embodiment can be used with both the inside and outside storage tanks 10). The fryers 12, 12', 12'' are connected to the outside tank 10 via stainless steel tubing 18. The tubing 18, in this embodiment, is Teflon®-lined stainless steel hose. With the multiple fryers 12, 12', 12'', a manifold bracket 38 is used to allow proper flow of oil to the tank 10.

With reference now to FIGURE 3, a storage caddy 20 is shown. The storage caddy 20 is used to receive oil from the fryer 12 and transport the oil to a storage tank 10. In this embodiment, the caddy 20 is used in place of the direct plumbed systems. The caddy 20 has a handle 24, a detachable power cord 26, a motor 22, a first container 32, a second container 34, a first tube 32, a second tube 30, and a filter 28. The first container 32 holds the used, non-filtered oil. Using a pumping mechanism (not shown), powered by the motor 22, the non-filtered oil is pulled up through the first tube 32 and into the second tube 30. The oil then passes over the filter 28. Any filter 28, or filtration system, can be used as long as chosen using sound engineering judgment. In this particular embodiment either Magnesol® XL, by The Dallas Group of Liberty Corner, New Jersey, or the Britesorb™ Oil Purifier, provided by The PQ Corporation of Valley Forge, Pennsylvania, is used. The storage caddy 20 allows the oil to be quickly and efficiently transported from the fryer 12 to the storage tank 10.

In another embodiment of this invention, an in-ground storage tank can be used. The design of the transport of the oil from the fryer to the tank is the same as any of the other embodiments, but the storage tank is located in the ground.

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It is to be understood that the dimensions provided within this application are merely intended to represent one embodiment of this invention, and are not intended to limit the invention in any manner.